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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/583,779

06/21/2006

Hiroshi Toyoda

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02/10/2009

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EXAMINER

D'ANIELLO, NICHOLAS P

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

02/10/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/583,779	Applicant(s) TOYODA ET AL.	
	Examiner Nicholas P. D'Aniello	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 4, 10 and 15-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-9 and 11-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/9/2007 and 6/21/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I and Species A in the reply filed on December 17th 2008 is acknowledged. This group and species encompass claims 1-3, 5-9 and 11-15.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 1-3, 5-9 and 11-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent claims 1-3 recite the limitation "said welded part" in second to last line. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1-3, 5-8 and 11-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshinori et al. (JP 2002-282703 cited in IDS, a machine translation of which is included).

Regarding **independent claims 1-3**, Yoshinori et al. teach a photocatalyst sheet (see figure 1) comprising; a substrate (support layer 2) made of polyester (a synthetic and inorganic fiber) or nylon (an inorganic fiber) (paragraph [0021] of translation), a coated layer made of a polyvinyl chloride resin coated on both sides of said substrate (see paragraphs [0006-0007]), and a photocatalyst-containing layer (figure 1, photocatalyst grain 1) coated on at least one side of said coated layer, characterized in that; said photocatalyst-containing layer contains; polyvinyl chloride resin and acrylic resin (paragraphs [0006-0007]) and PTFE resin (a fluorocarbon resin), and apatite-coated photocatalyst particles (see paragraph [0013]), the ratio of said apatite-coated photocatalyst particles to said photocatalyst-containing layer is 10-40 weight % (paragraph [0011]). The limitation of “the peeling rate of said welded part from said substrate is 50 mm/min when said photocatalyst sheets are mutually thermally welded” is a conditional limitation (when... welded) depending on the process of making/using the product and does not limit the scope of these claims as this claim does not positively require the sheets to be thermally welded.

The Examiner notes that claimed limitation of “photocatalyst sheets are mutually thermally welded” is drawn to a product by process limitation, however per MPEP 2113: The patentability of a product does not depend on its method of production. In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). In the instant case,

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the product set forth in product-by-process claims 1-3 (as claimed) are the same as that set forth by Yoshinori et al., above.

In regard to **claim 5**, the apatite-coated photocatalyst particles fixed in said photocatalyst containing layer have parts exposed from the surface of said photocatalyst containing layer (figure 1, paragraph [0013]).

In regard to **claim 6**, the apatite-coated photocatalyst particles are the photocatalyst particles either a part of the surface of which is coated with apatite, or a whole surface of which is coated with porous apatite (paragraph [0013]).

In regard to **claim 7**, as the photocatalyst sheet of Yoshinori et al. is patentably indistinguishable in terms of structure and composition is it reasonably assumed that the quantity of coating of apatite to be coated on said photocatalyst particles is such that the weight loss ratio of whole of said photocatalyst sheet is 10% or less in case that the ultraviolet light of intensity 18 mW/cm² is irradiated for one hour on the surface of said photocatalyst sheet.

In regard to **claim 8**, the photocatalyst sheet is either or both of an ultraviolet light responsive type and a visible light responsive type (such as TiO₂ alone or in combination with others paragraph [0012]).

In regard to **claim 11**, the apatite-coated photocatalyst particles are fixed with the resin or rubber constituting said photocatalyst-containing layer (figure 1, paragraph [0013]).

In regard to **claim 12**, the ratio of said apatite-coated photocatalyst particles to said resin or rubber is 10-90 weight% (paragraph [0011]).

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In regard to **claim 13**, the resin is either of vinyl chloride, polyethylene, polypropylene, fluorocarbon, and polystyrene resins (as applied above, paragraph [0007]).

In regard to **claim 14**, the fluorocarbon resin is polytetrafluoroethylene (PTFE) (as applied above, paragraph [0013]).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshinori et al. as applied to claims 1-3 above, and further in view of Taoda et al. (USP 6,180,548).

Yoshinori et al. disclose apatite coated titania (paragraph [0013]) but fail to disclose a specific apatite. However, Taoda et al. teach a similar titanium oxide coated photocatalyst where the surface of the titania is coated with apatite hydroxide because this form of apatite absorbs bacteria in water or air which can be decomposed by the photocatalyst (column 3 line 66 - column 4 line 23).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use apatite hydroxide as the apatite coating in the photocatalyst sheet of

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Yoshinori et al. as this is a known effective form of apatite for photocatalyst coatings as exemplified by Taoda et al.

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas P. D'Aniello whose telephone number is (571)270-3635. The examiner can normally be reached on Monday through Thursday from 8am to 5pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. P. D./
Examiner, Art Unit 1793

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/Kiley Stoner/
Primary Examiner, Art Unit 1793